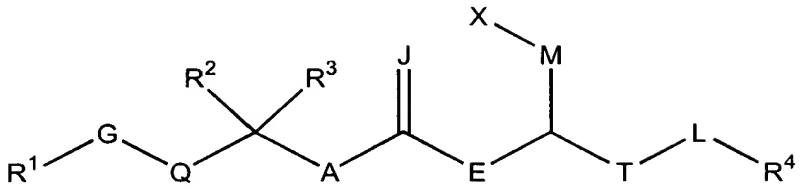
Claims

We claim:

1. A compound of the structure



wherein A is selected from the group consisting of O, S, and NR^5;

E is selected from the group consisting of CH_2, O, S, and NR^6;

Q is selected from the group consisting of C(O) and $(CH_2)_k$ wherein k is an integer of 0 or 1;

J is selected from the group consisting of O, S and NR^8;

G is selected from the group consisting of O, NH, S, and $(CH_2)_p$ wherein p is an integer of 0 or 1;

T is selected from the group consisting of C(O) and $(CH_2)_b$ wherein b is an integer of from 0 to 3;

L is selected from the group consisting of O, NR^7, S, and $(CH_2)_n$ wherein n is an integer of 0 or 1;

M is selected from the group consisting of $C(R^9)(R^{10})$ and $(CH_2)_u$, wherein u is an integer of from 0 to 3;

X is selected from the group consisting of CO_2B, PO_3H_2, SO_3H, OPO_3H_2, $C(O)NHC(O)R^{11}$, $C(O)NHSO_2R^{12}$, tetrazolyl and hydrogen;

B, R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11} and R^{12} are independently selected from the group consisting of hydrogen, alkyl, cycloalkyl,

aryl, hydroxyalkyl, alkoxy, alkoxyalkoxy, cycloalkylalkyl, alkylamino, haloalkyl, alkylaryl, arylalkyl, heterocyclyl, alkylheterocyclyl and heterocyclylalkyl groups;

wherein R^2 and R^3 taken together may form a ring;

R^4 and R^7 taken together may form a ring;

R^9 and R^{10} taken together may form a ring;

and salts thereof.

2. A compound of claim 1 wherein

R^1, R^2 and R^3 are independently selected from the group consisting of hydrogen, alkoxy, alkoxyalkoxy, aryl, alkylaryl, arylalkyl, heterocyclyl and alkyl;

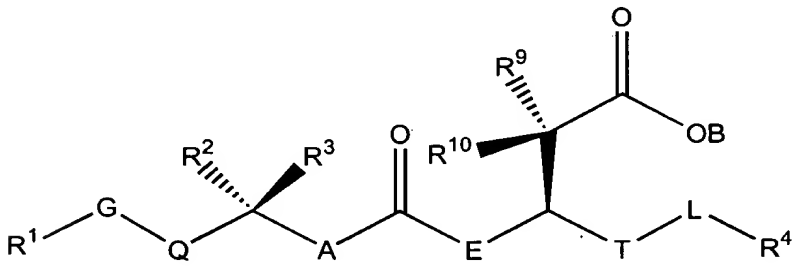
R^4 is selected from the group consisting of aryl, alkylaryl, arylalkyl, heterocyclyl, alkylheterocyclyl and heterocyclylalkyl;

X is CO_2B; and

M is $C(R^9)(R^{10})$ wherein R^9 and R^{10} are independently selected from the group consisting of hydrogen and lower alkyl.

3. A compound of claim 1 further comprising derivatives of said compound selected from the group consisting of esters, carbamates, aminals, amides, ~~and pro-drugs~~ and thereof.

4. A compound of claim 1 of the structure



wherein A is selected from the group consisting of O, S, and NR^5;

E is selected from the group consisting of CH_2, O, S, and NR^6;

Q is selected from the group consisting of C(O) and $(CH_2)_k$ wherein k is an integer of 0 or 1;

G is selected from the group consisting of O, NH, S, and $(CH_2)_p$ wherein p is an integer of 0 or 1;

T is selected from the group consisting of C(O) and $(CH_2)_b$ wherein b is an integer of 0 to 3;

L is selected from the group consisting of O, NR^7, S, and $(CH_2)_n$ wherein n is an integer of 0 or 1;

B, R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^9 and R^{10} are independently selected from the group consisting of hydrogen, alkyl, cycloalkyl, aryl, hydroxyalkyl, alkoxy, alkoxyalkoxy, cycloalkylalkyl, alkylamino, haloalkyl, alkylaryl, arylalkyl, heterocyclyl, alkylheterocyclyl and heterocyclylalkyl groups;

wherein R^2 and R^3 taken together may form a ring;

R^4 and R^7 taken together may form a ring;

R^9 and R^{10} taken together may form a ring;

and salts thereof.

5. A compound of claim 4 wherein R^1, R^2 and R^3 are independently selected from the group consisting of hydrogen, alkoxy, alkoxyalkoxy, aryl, alkylaryl, arylalkyl, heterocyclyl and alkyl;

R^4 is selected from the group consisting of aryl, alkylaryl, arylalkyl, heterocyclyl, heterocyclylalkyl and alkyheterocyclyl;

R^5 and R^6 are hydrogen; and

R^9 and R^{10} are independently selected from the group consisting of hydrogen and lower alkyl.

6. A compound of claim 4 further comprising derivatives of said compound selected from the group consisting of esters, carbamates, aminals, and amides, ~~and pro-drugs~~ thereof.

7. A compound of claim 1 selected from the group consisting of:
(3S)-3-(1,3-benzodioxol-5-yl)-3-(((((1S)-3-(methylsulfanyl)-1-((phenylsulfanyl)methyl)propyl)amino) carbonyl)amino)propanoic acid,
(3S)-3-(1,3-benzodioxol-5-yl)-3-(((((1S)-2-((cyclopropylmethyl)thio)-1-((phenylthio)methyl)ethyl)amino)carbonyl) amino)propanoic acid,
(9S,13S)-13-(1,3-benzodioxol-5-yl)-3,11-dioxo-1-phenyl-9-{[(2-thienylmethyl)amino]carbonyl}-2-oxa-4,10,12-triazapentadecan-15-oic acid, (9S,13S)-13-(1,3-benzodioxol-5-yl)-9-{[(3-hydroxy-4-methoxybenzyl)amino]carbonyl}-3,11-dioxo-2-oxa-4,10,12-triazapentadecan-15-oic acid,
(3S)-3-(1,3-benzodioxol-5-yl)-3-{[({(1S)-2-(benzylsulfanyl)-1-[(phenylsulfanyl)methyl]ethyl}amino)carbonyl] amino}propanoic acid, (3S)-3-(1,3-benzodioxol-5-yl)-3-{[({(1S)-3-(methylsulfanyl)-1-[({4-[(2-toluidinocarbonyl)amino]phenyl}sulfanyl) methyl]propyl}amino)carbonyl]amino}propanoic acid, (3S)-3-(1,3-benzodioxol-5-yl)-3-{[({(1S)-2-(ethylsulfanyl)-1-[(phenylsulfanyl)methyl]ethyl}amino) carbonyl]amino}propanoic acid,
(9S,13S)-13-(1,3-benzodioxol-5-yl)-9-[({4-[(2-methylbenzyl)amino]benzyl} amino)carbonyl]-3,11-dioxo-1-phenyl-2-oxa-4,10,12-triazapentadecan-15-oic acid, (3S)-3-(1,3-benzodioxol-5-yl)-3-{[({(1S)-3-(methylsulfanyl)-1-[({3-[(2-toluidinocarbonyl)amino]phenyl}sulfanyl)methyl] propyl}amino)carbonyl]amino}propanoic acid, (3S)-3-(1,3-benzodioxol-5-yl)-3-{[({(1S)-2-(ethylthio)-1-[(phenylthio)methyl]ethyl}oxy)carbonyl]amino} propanoic acid, (9S, 13S)-13-(1,3-benxodioxol-5-yl)-3,11-dioxo-1-phenyl-9-(((4-((2-toluidinocarbonyl)amino)benzyl)amino)carbonyl)-2-oxa-4, 10,12-triazapentadecan-15-oic acid,
and pharmaceutically acceptable salts thereof.

8. A compound of claim 7 further comprising derivatives of said compound selected from the group consisting of esters, carbamates, aminals, amides, optical isomers ~~and pro-drugs~~ thereof.

9. A pharmaceutical composition comprising:
a compound of claim 1
and pharmaceutically acceptable salts thereof,
in a pharmaceutically acceptable carrier.

10. A method for selectively inhibiting $\alpha_4\beta_1$ integrin binding in a mammal comprising administering to said mammal a therapeutic amount of a compound of claim 1.